

REMARKS

Status of the Claims

Upon entry of the present amendment, claims 1-10 will remain pending in the above-identified Application and stand ready for further action on the merits. Claims 1 and 7 are currently amended. Reconsideration and allowance of all of the pending claims is respectfully requested.

New matter is not being introduced into the Application by way of this amendment. The amendment to claim 1 is supported at page 18, line 20 of the specification, and at page 4, lines 21-22 of the specification. The amendment to claim 7 is supported at page 18, lines 18-19 of the specification. Accordingly, no new matter is added, and entry of this amendment is respectfully requested.

Examiner Interview

The Applicants would like to thank the Examiner for the courtesy shown in the telephonic Interview held on October 11, 2006. Applicants await receipt of the Examiner Interview Summary Form resulting from the Interview.

The Examiner's comments in the interview were taken into consideration when preparing the current reply.

Claim Rejections – 35 U.S.C. §103

Claims 1-10 are rejected under 35 U.S.C. §103(a) as unpatentable over EP 1 020 501 (**EP ‘501**) alone, or in view of **Liu US ‘795** (U.S. 6,299,795) and/or **Ina US ‘803** (U.S. 6,315,803) for reasons set forth in previous Office Actions.

Claims 1-4 and 6-10 are rejected under 35 U.S.C. §103(a) as unpatentable over EP 1 036 836 (**EP ‘836**) alone, or in view of **Liu US ‘795** and/or **Ina US ‘803**, for the reasons set forth in previous Office Actions.

For the reasons given below, each of these rejections is respectfully traversed and reconsideration and withdraw of the same are respectfully requested.

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

“There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to

the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Distinctions Over the Cited Art

1.) EP '501

EP '501 discloses the use of inorganic particles having a very wide particle size range of greater than 0.01 μm and less than 5 μm (see [0055] of EP'501). However EP '501 does not disclose or suggest the possibility of using colloidal silica as a part of their invention. EP '501 also does not disclose or suggest the unexpected results shown for the use of colloidal silica in the size range presently recited in claim 1.

EP '501 discloses throughout the specification that the only silica in view for their invention is fumed silica. EP '501 in fact uses fumed silica in all of the working examples. EP '501 only mentions colloidal silica in paragraph [0093] in reference to its use in a comparative example. The use of colloidal silica in comparative examples clearly demonstrates that EP '501 does not consider colloidal silica to be encompassed by their claims. One skilled in the art would recognize that the mention of "silica" in certain places in the EP '501 specification is merely shorthand for "fumed silica." As discussed in the Reply filed August 11, 2005, pages 5-8, (and in the accompanying Exhibits 1 and 2), fumed silica and colloidal silica are completely different forms of silica and are not interchangeable. Accordingly, the Applicants respectfully submit that EP '501 does not disclose or suggest the use of colloidal silica as presently recited in claim 1. Withdrawal of this rejection is required.

In addition, the Applicants respectfully submit that the Yoneda Declaration submitted with the last reply demonstrates unexpected results for the particle size range of 20-95 nm. *See Yoneda Declaration, filed February 28, 2006, Fig. A, page 7.*

Applicants fully realize that both EP '501 and EP '836 may mention inorganic particle sizes that fall within the particle size range of 20-95 nm.

However EP '501 and EP '836 each only mention extremely broad overlapping ranges. EP '501 mentions 50 nm to 1.0 μ m at paragraph [0055]. EP '836 mentions 10 nm to 1.0 μ m at paragraph [0061]. Since the presently claimed range of 20-130 nm only overlaps or lies within a very narrow portion of these broad ranges, it is submitted that at most, a *prima facie* case of obviousness can be established. "In the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists." MPEP §2144.05, citing *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). "Applicants can rebut a prima facie case of obviousness based on overlapping ranges by showing the criticality of the claimed range." MPEP §2144.05.

The data provided in the Yoneda **Declaration**, filed with the last reply, clearly demonstrates that the inorganic particle size range of 20-130 nm shows unexpected results in the polishing rate. *See Yoneda Declaration, Figure A, page 7.* In the YONEDA Declaration, it was shown that:

- There is the surprising and unexpected result that the polishing rate is greatly increased when colloidal silica, and especially colloidal silica with a particle size of from 20-130 nm, and polymer particles are used in combination, as compared to the case where these components are not used in combination;

- A likewise effect of an increase in the polishing rate is not observed when fumed silica and polymer particles are used in combination, as compared to the case where these components are not used in combination; and
- a surprising and unexpected result that the dispersibility of a polishing composition containing colloidal silica is more stable than one containing fumed silica.

This is summarized in Figure A of the Yoneda Declaration, page 7. This was also discussed in the reply filed on February 28, 2006 at page 7.

The Examiner asserts that the scope of polymers recited in the claims is not commensurate in scope with the data in the Yoneda Declaration. See Office Action, page 5. However, the Applicants respectfully disagree. The experiments shown in the Yoneda Declaration all use polymers and amounts that are encompassed by the present claims as currently amended. The specification makes clear that the polymer particles that may be used with this invention include polymer particles made of a thermoplastic resin or particles made of a thermosetting resin. This is described at pages 5-8 of the present specification. The polymer particles shown in the Yoneda Declaration are therefore commensurate in scope with the claims.

The Examiner also asserts that the polymer particles shown in the Yoneda Declaration are only of one size. However the Applicants respectfully point out that this is not the case. The Yoneda Declaration incorporates data from Examples 1-20 (See Tables 2 and 3, pages 28-30) of the specification. A range of polymer sizes that are within the scope of the present claims is shown. This is reflected in the Yoneda Declaration and in the data shown in the specification. See Table 2, page 28 and Table 3, page 30 of the present specification.

The Applicants respectfully assert that all of the Examiner's objections at page 5 of the Office Action concerning the Yoneda Declaration have been fully and completely answered. The Yoneda Declaration clearly and unambiguously demonstrates unexpected results for the presently claimed invention. Withdrawal of the pending prior art rejections is therefore required.

In addition, the recitation of a pH of from 7-12 in claim 1 is not disclosed or suggested by the prior art. In Ina US '803, in order to polish copper wire, the pH is limited to 3-6. See column 9, line 37, so as to avoid corrosion of copper wire. Also, in Liu US '795 in order to avoid corrosion of metal within the memory of a hard disk, the polishing liquid is disclosed as acidic. In fact, Liu US '795 mentions that a pH of 1-5 is used. See Liu US '795, col. 4, line 43. Claim 1, as currently amended, recites a silicon substrate, a polysilicone substrate, or a silicon oxide film. Accordingly, the polishing composition in claim 1 is limited to an alkaline pH. Therefore, the combination of EP '501 with Liu US '795 and Ina US '803 does not disclose or suggest a pH of 7-12 as recited in claim 1.

2.) EP '836

EP '836 discloses polishing compositions that include inorganic particles with an extremely broad particle size range of 0.01-1.0 μm . See EP '836, paragraph [0061]. EP '836 also only discloses fumed silica. See EP '836 paragraph [0070]. The Examiner again asserts that the mere mention of "silica" in claim 8, for example, encompasses all forms of silica. However as discussed above, the Applicants respectfully submit that one skilled in the art would clearly understand that by "silica" EP '836 intends "fumed silica." The recitation of "silica" is merely shorthand for "fumed silica." Therefore, EP '836 does not disclose or suggest the use of colloidal

silica as presently recited in claim 1. Therefore, this rejection must be withdrawn.

It is surprising and completely unexpected over the teachings of EP '836 that a high polishing rate can be achieved when using colloidal silica with an average particle size in the size range of 20-95 nm, when such silica particles are used in combination with polymer particles. The Applicants respectfully submit that the prior art does not disclose or suggest the polishing compositions that are presently claimed.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of the pending claims are allowable at present.

Should there be any outstanding matters that need to be resolved in the present Application, the Examiner is respectfully requested to contact J. Mark Konieczny (Reg. No. 47,715) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present Application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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